

## REMARKS

Claims 1, 5 and 10-20 are pending.

Claim 17 is amended.

Claims 1-5 and 10-20 are rejected.

### **35 USC 112, second paragraph**

Claim 17 is amended to clarify wherein the sizing agent further comprises a stabilizer. Applicants believe this amendment overcomes the indefinite rejection.

Support for the above amendment may be found on page 5, third paragraph, second sentence.

No new matter is added.

### **35 USC 103(a)**

**Claims 1, 5 and 10-20 are rejected under 35 USC 103(a) as being unpatentable over Tansley, US 5626719 in view of Fakoukakis, US 4956478 and further in view of Frohloch, US 5969011, Sonoda et al. and Shin, US 5021169.**

Examiner has found the applicants earlier arguments unconvincing. Specifically examiner admits that the data in the instant specification show improved properties for pure ASA over ASA having about 4.4% olefins and about 7.2 % polymeric residues. Further, the examiner agrees that the data in the Declaration (4/7/2008) shows convincing improvements in Cobb values with decreasing percentages of olefins and/or polymeric residues.

Then, the examiner follows the above agreement that the data shows convincing improvement with a statement that arguments by counsel (pp.6-8) cannot take the place of evidence in the record.

He reconciles these seeming contradictory evaluations by saying that the data compare properties for pure ASA over ASA having a level of olefins and polymeric residue much higher than the claimed invention. The showing fails to demonstrate any unexpected changes in the properties of the ASA composition or paper treated therewith in the vicinity of the claimed limits of polymeric residues or olefins.

Applicants disagree with the examiner's analysis for the reasons which follow.

Tansley discloses a sized liquid packaging paper or board which sizing comprises ASA. Tansley however does not disclose the polymeric residues or olefin content. Fakoukakis teaches ASA which are about 99 % pure. In particular, Fakoukakis discloses ASA having substantially no polymeric content.

Fakoukakis teaches that the unreacted olefins can be distilled from the formed ASA and used in subsequent reactions. Fakoukakis does not teach a limit to the olefinic content of the ASA other than to say that the calculated DTSA (dodecene/tetradecen succinic anhydride) yield varies from a low of about 89.5 wt. % to about 98.2 (Table 1) and 99 wt. % in examples 10 and 11.

Fakoukakis teaches substantially no polymeric residues but makes no statement as to the olefin content of his DTSA. Further, Fakoukakis teaches DTSA of less than 100% purity. The maximum purity of his DTSA is 99% and this is the theoretical purity based on amounts of formed DTSA and recovered starting materials. As Fakoukakis teaches substantially no polymeric residues, it is reasonable to assume that the formed DTSA may contain at least about 1 wt. % residual olefins. Thus the applicants believe that the formed DTSA is not likely to reflect the present claim limitations which require a maximum of 0.5 wt. % polymeric residues AND less than 0.5 % by weight of olefins.

Applicants agree that Fakoukakis does not recite the use of ASA as a sizing agent. However, examiner states that ASA is a well known cellulose reactive size as evidenced by Frohlich.

Examiner also considers Sonoda and Shin as teaching the use of ASA for sizing and further teaching the desirability of obtaining high purity products without tar substance byproducts.

Thus the examiner alleges that one of ordinary skill in the art would have found a product containing nearly pure ASA and 0.5 % or less of polymer residues and /or olefins to be an obvious embodiment over the disclosure of Fakoukakis.

However, applicants point out that neither Fakoukakis, Shin, Sonoda or Tansley mention anything about the final concentration of residual olefin in the formed ASA. While Fakoukakis and Sonoda teach distillation to remove or recover olefins, it is clear that none recognized the importance of minimizing the olefin content in ASA. All the cited references discuss elimination of polymeric residues but fail to teach reducing olefin concentration to levels of a maximum of 0.5 %.

Further, applicants point to the results of the data presented in the Declaration and specification, discussed at length in the last Office Action. The examiner has discounted the data agreeing that the ASA does show improved properties at low levels of polymerics and olefins but applicants have failed to show unexpected properties in the ranges claimed. Applicants find this rejection somewhat confusing as the cited references teach the desirability of having low levels of polymeric materials but teach no ranges for which olefin levels are acceptable. It appears that it is the applicants which have understood that both the residual polymerics AND olefins content need to approach a minimum in order to obtain a sizing with highly advantageous properties (peroxide resistance, lactic acid resistance, hydrolytic stability etc.). Not one of the cited references quantify both the residual polymerics and olefin content.

The presently claimed sized paper or board is sized with ASA which incorporates a maximum of 0.5 % by weight of polymeric residues AND contains less than 0.5 wt. % of olefins. A *prima facie* case of obviousness must contain all the claim limitations. The combination of the references assembled by the examiner do not teach the last limitation (0.5 wt. % olefin). Thus, applicants respectfully submit that the rejection is an incomplete 103(a) rejection.


Reconsideration and withdrawal of the rejection of claims 1,5 and 10-20 is respectfully solicited in light of the remarks and amendments *supra*.

Since there are no other grounds of objection or rejection, passage of this application to issue with claims 1-2 and 4-20 is earnestly solicited.

Applicants submit that the present application is in condition for allowance. In the event that minor amendments will further prosecution, Applicants request that the examiner contact the undersigned representative.

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Respectfully submitted,

  
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